Data Limitations and Validation Report

Lockheed Idaho Technologies

SDG 93030806

Argonne National Laboratory - West

Semivolatile Organic Compounds

Three Aqueous Samples

Validated by:

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3-5-96

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## 1.0 INTRODUCTION

The Argonne National Laboratory - West sample set for Case No. 93030806, SDG 93030806 consists of three aqueous samples analyzed for Target Compound List (TCL) semivolatile organic compounds. All analyses were conducted using SW-846 Method 8270 analytical and reporting protocols. The analyses were performed by the Biospherics Laboratory using the protocols outlined in the ANL-West SOW. The data were reported as a Level IV analysis. A Level A validation was performed on the samples contained in this SDG. A total of 192 sample data points were reported in this analytical data set.

The analytical data from these analyses were reviewed by HALLIBURTON NUS Corporation personnel in accordance with ERP Standard Operating Procedure SMO-SOP-12.1.3.

## 2.0 QUALITY CONTROL SUMMARY

The data were evaluated based on the following parameters:

- Data Completeness
- * Holding Times
- GC/MS Tuning and Mass Calibration
- Initial and Continuing Calibrations
- * Blank Analyses
- Surrogate Spike Recoveries
- Matrix Spike/Matrix Spike Duplicate Results
- Internal Standards Performance
- System Performance and Detection Limits
- Compound Identification
- * Compound Quantitation
- Laboratory Performance

The asterisk indicates that all quality control criteria were met for this parameter. Problem areas affecting data usability are discussed in Section 4.0 of this report. A Glossary of Data Validation Flags which defines the validation qualifiers applied on a sample-specific basis is presented in Section 6.0.

## 3.0 DATA COMPLETENESS

The data presented in Case No. 93030806, SDG 93030806 consists of semivolatile organic results for three (3) aqueous samples as follows:

MW-11(93030806-1) EBR-II No. 1(93030806-2) EBR-II No.2(93030806-3)

The data package was incomplete as submitted. Chain of custody forms, initial and continuing calibration Form VIs and VIIs, and surrogate recovery Form IIs were not contained in the data package. Hence, the data could not be evaluated for these parameters. The presentation and documentation of data package deliverables were extremely poor. The data package does not conform to a Level A deliverable. Notable omissions on the laboratory forms includes: incorrect internal standard areas reported on the Form VIII for the environmental samples, and an omission of a positive result that was less than the detection limit for bis(2-ethylhexyl)phthalate. No contact with the laboratory was required to complete the validation of this package.

## 4.0 SUMMARY OF DATA USABILITY

It should be noted that a chain of custody form for the samples contained in this SDG was not provided. However, an Analysis Bench Sheet was provided with the date of sample collection. All holding times were met. No further action was necessary.

The initial calibration DFTPP Form V and associated Form VI were not included in this SDG. A semivolatile DFTPP instrument performance check Form V was provided for 03/22/93 at 18:09. However, the associated continuing calibration Form VIIs were not provided. Hence, the samples were not evaluated for calibration noncompliances.

It should be noted that the laboratory failed to provide a surrogate recovery Form II for the samples contained in this SDG. A preliminary surrogate report was available for samples EBR-II No 1(93030806-2) and EBR-II No 2(93030806-3), which reported the necessary information. Surrogate recoveries for sample MW-11(93030806-1) were determined from the sample quantitation report. No action was taken for sample EBR-II No 1(93030806-2) since only one acid fraction surrogate was high. Samples MW-11(93030806-1) and EBR-II No 2(93030806-3) yielded high Percent Recoveries (%Rs) for 2-fluorophenol and phenol-d5. The nondetected results for the acid-fraction target compounds in these samples were qualified as estimated, (UJ).

The Matrix Spike/Matrix Spike Duplicate (MS/MSD) analyses of sample EBR-II No. 2(93030806-3) yielded high %Rs for N-nitroso-di-n-propylamine, 2,4-dinitrotoluene and pyrene. High Relative Percent Differences (RPDs) were also reported for 1,4-dichlorobenzene and 4-nitrophenol. Positive results only are affected by these noncompliances. No action was taken since only nondetected results were reported for these compounds in the unspiked sample.

A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. No action was taken since no positive results were reported for this compound in the affected samples and nondetected results are not compromised by this noncompliance.

It should be noted that the laboratory reported internal standard areas for 1,4-dichlorobenzene-d4, napthalene-d8 and acenaphthene-d10 in all three samples incorrectly. The 12 hour standard and upper/lower limits were also reported incorrectly for naphthalene-d8. Based on the raw data, the data reviewer has amended the appropriate forms.

Annotated laboratory Form I data summary reports showing the data and relevant qualifier flags applied are presented in Appendix A of this report. Copies of the unqualified data summary reports as reported by the laboratory are provided in the attached Appendix B. The attached Appendix C includes documentation to support the findings discussed in this report.

A sample-specific summary of the data validation flags applied is depicted in Table 1, appearing on the following page. The qualifier flags used as a result of the validation process are defined in Section 6.0 (Glossary of Data Validation Flags) of this report. Details regarding the application of the validation qualifiers are discussed in the remainder of this section.

**TABLE 1***

**LOCKHEED IDAHO TECHNOLOGIES**

**Case No. 93030806, SDG 93030806**

**SEMIVOLATILE ORGANIC COMPOUNDS**

| Sample No. | Qualifier Flags |
|---|---|
| MW-11(93030806-1) | J[1] |
| EBR-II No.1(93030806-2) | |
| EBR-II No.2(93030806-3) | J[1] |

* See Section 6.0 Glossary of Data Validation Flags for qualifier flag definitions.

### 4.1 Holding Times

It should be noted that a chain of custody form for the samples contained in this SDG was not provided. However, an Analysis Bench Sheet was provided with the date of sample collection. All holding times were met. No further action was necessary.

### 4.2 Calibrations

The initial calibration DFTPP Form V and associated Form VI were not included in this SDG. A semivolatile DFTPP instrument performance check Form V was provided for 03/22/93 at 18:09. However, the associated continuing calibration Form VIIs were not provided. Hence, the samples were not evaluated for calibration noncompliances.

### 4.3 Surrogate Recoveries

The %Rs for phenol-d5 and 2-fluorophenol were above the upper quality control limits in samples MW-11(93030806-1) and EBR-II No 2(93030806-3). Only nondetected results were reported for the acid fraction compounds in these samples and these nondetects were qualified as estimated, (UJ).

A high %R for 2-fluorophenol was noted for sample EBR-II No 1(93030806-2). No action was taken since only one surrogate was noncompliant.

### 4.4 Matrix Spike/Matrix Spike Duplicate Results

The MS/MSD analyses of sample EBR-II No. 2(93030806-3) yielded high %Rs for N-nitroso-di-n-propylamine, 2,4-dinitrotoluene and pyrene. High RPDs were also reported for 1,4-dichlorobenzene and 4-nitrophenol. Positive results only are affected by these noncompliances. No action was taken since only nondetected results were reported for these compounds in the unspiked sample.

### 4.5 Blank Spike Results

A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. No action was taken since no positive results were reported for this compound in the affected samples and nondetected results are not compromised by this noncompliance.

### 4.6 Internal Standard Areas

It should be noted that the laboratory reported internal standard areas for 1,4-dichlorobenzene-d4, napthalene-d8 and acenaphthene-d10 in all three samples incorrectly. The 12 hour standard and upper/lower limits were also reported incorrectly for naphthalene-d8. Based on the raw data, the data reviewer has amended the appropriate forms.

### 4.7 Additional Comments

It should be noted that the laboratory failed to report a positive result for bis(2-ethylhexyl)phthalate which was below the detection limit in sample EBR-II No 2(93030806-3). The quantitation report and chromatogram for this sample can be found in the support documentation - Appendix C.

It should be noted that the detection limits on the laboratory Form Is may be incorrect. The detection limits may be low by a factor of two since only 500 ml were extracted instead of the method indicated amount of 1000 ml.

## 5.0 SUMMARY OF LABORATORY PERFORMANCE

Chain of custody forms and laboratory Form IIs, Vs, VIs and VIIs were not contained in the data package. All three samples had high %Rs reported for acid-fraction surrogates. The MS/MSD analyses yielded high %Rs and high RPDs for several compounds. A high %R was reported for 4-chloro-3-methylphenol in the blank spike sample. The internal standard Form VIII was reported incorrectly. The laboratory failed to report a positive result in sample EBR-II No 2(93030806-3).

The overall documentation and completeness of the data package deliverables were extremely poor. The inadequate presentation of the information in this package has compromised the validation review.

## 6.0 GLOSSARY OF DATA VALIDATION FLAGS

The following data validation flags were applied to the sample data for reasons detailed previously in this report:

$J^1$ - Estimate, (UJ), nondetected results reported for the acid fraction target compounds as a result of high acid fraction surrogate %Rs.

## 7.0 REFERENCES

The data referenced in this report were validated in accordance with the protocols outlined in ERP Standard Operating Procedure SMO-SOP-12.1.3 as presented in ERP-SOW-37. In addition, details stipulating laboratory procedures as outlined in the ANL-West SOW were referenced.

# APPENDIX A

# QUALIFIED LABORATORY RESULTS

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 93030806-1

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH774::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: _____

AMB 2-27-96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 108-95-2- | Phenol | 10 | UJ |
| 111-44-4- | bis(2-Chloroethyl)ether | 10 | U |
| 95-57-8- | 2-Chlorophenol | 10 | UJ |
| 541-73-1- | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7- | 1,4-Dichlorobenzene | 10 | U |
| 95-50-1- | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7- | 2-Methylphenol | 10 | UJ |
| 108-60-1- | 2,2'-oxybis(1-Chloropropane) | | NR |
| 106-44-5- | 4-Methylphenol | 10 | UJ |
| 621-64-7- | N-Nitroso-di-n-propylamine | 10 | U |
| 67-72-1- | Hexachloroethane | 10 | U |
| 98-95-3- | Nitrobenzene | 10 | U |
| 78-59-1- | Isophorone | 10 | U |
| 88-75-5- | 2-Nitrophenol | 10 | UJ |
| 105-67-9- | 2,4-Dimethylphenol | 10 | UJ |
| 111-91-1- | bis(2-Chloroethoxy)methane | 10 | U |
| 120-83-2- | 2,4-Dichlorophenol | 50 | UJ |
| 120-82-1- | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3- | Naphthalene | 10 | U |
| 106-47-8- | 4-Chloroaniline | 50 | U |
| 87-68-3- | Hexachlorobutadiene | 10 | U |
| 59-50-7- | 4-Chloro-3-methylphenol | 50 | UJ |
| 91-57-6- | 2-Methylnaphthalene | 10 | U |
| 77-47-4- | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2- | 2,4,6-Trichlorophenol | 10 | UJ |
| 95-95-4- | 2,4,5-Trichlorophenol | 10 | UJ |
| 91-58-7- | 2-Chloronaphthalene | 10 | U |
| 88-74-4- | 2-Nitroaniline | 10 | U |
| 131-11-3- | Dimethylphthalate | 10 | U |
| 208-96-8- | Acenaphthylene | 10 | U |
| 606-20-2- | 2,6-Dinitrotoluene | 10 | U |
| 99-09-2- | 3-Nitroaniline | 50 | U |
| 83-32-9- | Acenaphthene | 10 | U |

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

MW-11

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 93030806-1

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH774::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: _____

AMB 2-27-96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 50 | UJ |
| 100-02-7 | 4-Nitrophenol | 50 | UJ |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 | UJ |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 10 | UJ |
| 85-01-8 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 86-74-8 | Carbazole | | NR |
| 84-74-2 | Di-n-butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 10 | U |
| 117-84-0 | Di-n-octylphthalate | 10 | U |
| 205-99-2 | Benzo(b)fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10 | U |

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBR II NO1

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 93030806-2

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH775::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: _____

AKB 2-27-96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 10 | U |
| 111-44-4 | bis(2-Chloroethyl)ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | U |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | U |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | | NR |
| 106-44-5 | 4-Methylphenol | 10 | U |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | U |
| 105-67-9 | 2,4-Dimethylphenol | 10 | U |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 50 | U |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 50 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 50 | U |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | U |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | U |
| 91-58-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 10 | U |
| 131-11-3 | Dimethylphthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U |
| 99-09-2 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | | U |

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBR II NO1

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 93030806-2

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH775::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: _____

JKB 2-27-96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 50 | U |
| 100-02-7 | 4-Nitrophenol | 50 | U |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 | U |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 10 | U |
| 85-01-8 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 86-74-8 | Carbazole | | NR |
| 84-74-2 | Di-n-butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 10 | U |
| 117-84-0 | Di-n-octylphthalate | 10 | U |
| 205-99-2 | Benzo(b)fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10 | U |

(1) - Cannot be separated from Diphenylamine

1B

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBR II N02

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: _____ SAS No.: _____ SDG No.: _____

Matrix: (soil/water) WATER Lab Sample ID: 93030806-3

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH776::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH: _____

AKB 2.27.96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 108-95-2 | Phenol | 10 | UJ |
| 111-44-4 | bis(2-Chloroethyl)ether | 10 | U |
| 95-57-8 | 2-Chlorophenol | 10 | UJ |
| 541-73-1 | 1,3-Dichlorobenzene | 10 | U |
| 106-46-7 | 1,4-Dichlorobenzene | 10 | U |
| 95-50-1 | 1,2-Dichlorobenzene | 10 | U |
| 95-48-7 | 2-Methylphenol | 10 | UJ |
| 108-60-1 | 2,2'-oxybis(1-Chloropropane) | | NR |
| 106-44-5 | 4-Methylphenol | 10 | UJ |
| 621-64-7 | N-Nitroso-di-n-propylamine | 10 | U |
| 67-72-1 | Hexachloroethane | 10 | U |
| 98-95-3 | Nitrobenzene | 10 | U |
| 78-59-1 | Isophorone | 10 | U |
| 88-75-5 | 2-Nitrophenol | 10 | UJ |
| 105-67-9 | 2,4-Dimethylphenol | 10 | UJ |
| 111-91-1 | bis(2-Chloroethoxy)methane | 10 | U |
| 120-83-2 | 2,4-Dichlorophenol | 50 | UJ |
| 120-82-1 | 1,2,4-Trichlorobenzene | 10 | U |
| 91-20-3 | Naphthalene | 10 | U |
| 106-47-8 | 4-Chloroaniline | 50 | U |
| 87-68-3 | Hexachlorobutadiene | 10 | U |
| 59-50-7 | 4-Chloro-3-methylphenol | 50 | UJ |
| 91-57-6 | 2-Methylnaphthalene | 10 | U |
| 77-47-4 | Hexachlorocyclopentadiene | 10 | U |
| 88-06-2 | 2,4,6-Trichlorophenol | 10 | UJ |
| 95-95-4 | 2,4,5-Trichlorophenol | 10 | UJ |
| 91-58-7 | 2-Chloronaphthalene | 10 | U |
| 88-74-4 | 2-Nitroaniline | 10 | U |
| 131-11-3 | Dimethylphthalate | 10 | U |
| 208-96-8 | Acenaphthylene | 10 | U |
| 606-20-2 | 2,6-Dinitrotoluene | 10 | U |
| 99-09-2 | 3-Nitroaniline | 50 | U |
| 83-32-9 | Acenaphthene | | U |

1C

SEMIVOLATILE ORGANICS ANALYSIS DATA SHEET

EPA SAMPLE NO.

EBR II NO2

Lab Name: BIOSPHERICS Contract: ARGONNE NAT LAB

Lab Code: 93030806 Case No.: SAS No.: SDG No.:

Matrix: (soil/water) WATER Lab Sample ID: 93030806-3

Sample wt/vol: 500 (g/mL) mL Lab File ID: >DH776::D4

Level: (low/med) LOW Date Received: 03/03/93

% Moisture: 0 decanted: (Y/N) N Date Extracted: 03/09/93

Concentrated Extract Volume: 1000 (uL) Date Analyzed: 03/22/93

Injection Volume: 1 (uL) Dilution Factor: 1

GPC Cleanup: (Y/N) N pH:

JWD 2-27-96

| CAS NO. | COMPOUND | CONCENTRATION UNITS: (ug/L or ug/Kg) ug/L | Q |
|---|---|---|---|
| 51-28-5 | 2,4-Dinitrophenol | 50 | UJ |
| 100-02-7 | 4-Nitrophenol | 50 | UJ |
| 132-64-9 | Dibenzofuran | 10 | U |
| 121-14-2 | 2,4-Dinitrotoluene | 10 | U |
| 84-66-2 | Diethylphthalate | 10 | U |
| 7005-72-3 | 4-chlorophenyl-phenylether | 10 | U |
| 86-73-7 | Fluorene | 10 | U |
| 100-01-6 | 4-Nitroaniline | 50 | U |
| 534-52-1 | 4,6-Dinitro-2-methylphenol | 50 | UJ |
| 86-30-6 | N-Nitrosodiphenylamine (1) | 10 | U |
| 101-55-3 | 4-Bromophenyl-phenylether | 10 | U |
| 118-74-1 | Hexachlorobenzene | 10 | U |
| 87-86-5 | Pentachlorophenol | 10 | UJ |
| 85-01-8 | Phenanthrene | 10 | U |
| 120-12-7 | Anthracene | 10 | U |
| 86-74-8 | Carbazole | | NR |
| 84-74-2 | Di-n-butylphthalate | 10 | U |
| 206-44-0 | Fluoranthene | 10 | U |
| 129-00-0 | Pyrene | 10 | U |
| 85-68-7 | Butylbenzylphthalate | 10 | U |
| 91-94-1 | 3,3'-Dichlorobenzidine | 20 | U |
| 56-55-3 | Benzo(a)anthracene | 10 | U |
| 218-01-9 | Chrysene | 10 | U |
| 117-81-7 | bis(2-Ethylhexyl)phthalate | 10 | U |
| 117-84-0 | Di-n-octylphthalate | 10 | U |
| 205-99-2 | Benzo(b)fluoranthene | 10 | U |
| 207-08-9 | Benzo(k)fluoranthene | 10 | U |
| 50-32-8 | Benzo(a)pyrene | 10 | U |
| 193-39-5 | Indeno(1,2,3-cd)pyrene | 10 | U |
| 53-70-3 | Dibenz(a,h)anthracene | 10 | U |
| 191-24-2 | Benzo(g,h,i)perylene | 10 | U |

(1) - Cannot be separated from Diphenylamine